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Indian Standard
**SPECIFICATION FOR
COTTON CHAFER FABRICS**
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Indian Standard

SPECIFICATION FOR COTTON CHAFER FABRICS

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Indian Standard

SPECIFICATION FOR COTTON CHAFER FABRICS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 16 August 1979, after the draft finalized by the Cotton and Cotton Products Sectional Committee had been approved by the Textile Division Council.

0.2 Chafer fabric is a woven fabric which is generally coated with unvulcanized rubber and laid around the bead of a tyre before curing. This fabric is used to maintain an abrasion resistant layer in contact with the rim of the wheel on which the tyre is mounted.

0.3 To familiarize the industry with International System of Units (SI Units) the basic SI Units as well as the recommended SI Units for use in the textile industry are given in Appendix C.

0.3.1 Standards of Weights and Measures Act, 1976 also stipulates use of SI Units.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements of cotton chafer fabrics used in the manufacture of automobile tyres, other than motor-cycle and scooter tyres.

1.2 This standard also gives the constructional particulars of a few popular varieties of cotton chafer fabrics for information only.

*Rules for rounding off numerical values (revised).

2. MANUFACTURE

2.1 Yarn — The yarn used in the manufacture of chafer fabrics shall be satisfactory in evenness and shall be reasonably free from neps, spinning and doubling defects.

2.2 Cloth — The cloth shall be evenly and firmly woven in plain weave. The cloth when visually examined shall be reasonably free from foreign matter and such defects as knots, lumps and irregularities of twist in yarn.

3. REQUIREMENTS

3.1 The cotton chafer fabrics shall conform to the requirements as given in Table 1.

3.2 The various constructional particulars of chafer fabrics shall be as agreed to between the buyer and the seller subject to the following tolerances when tested by the methods shown against them:

<i>Parameter</i>	<i>Tolerance, Percent</i>	<i>Method of Test</i>
Ends	± 2.5	IS : 1963-1969*
Picks	± 5	IS : 1963-1969*
Mass	± 5	IS : 1964-1970†
Thickness	± 10	IS : 7702-1975‡
Length	+ 1 — 0.5	IS : 1954-1969§
Width	± 2	IS : 1954-1969§

3.2.1 The constructional particulars of a few popular varieties are given in Appendix A for information only.

3.3 The chafer fabrics shall be starch free when tested by the method given in Appendix B.

4. PACKAGING

4.1 The cloth shall be made into tight rolls of 200 metres or any other length as agreed to between the buyer and the seller.

*Methods for determination of threads per decimetre in woven fabrics (*first revision*).

†Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*).

‡Method for determination of thickness of woven and knitted fabrics.

§Methods for determination of length and width of fabrics (*first revision*).

TABLE 1 REQUIREMENTS OF COTTON CHAFER FABRICS
(Clause 3.1)

MASS (see Note)	BREAKING LOAD, Min (RAVELLED STRIP)	
	Warp	Weft
(1)	(2)	(3)
g/m ²	N	N
225-300	450	450
301-375	675	750
376-450	825	825
451-525	1 050	1 125
526-600	1 500	1 500
METHOD IS : 1964-1970*	IS : 1969-1968†	IS : 1969-1968†
OF TEST		

NOTE — The synthetic fabrics satisfying the required breaking load values may have mass about 1/3rd of the corresponding cotton fabrics.

*Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*).

†Method for determination of breaking load and elongation at break of woven textile fabrics (*first revision*).

5. MARKING

5.1 Each roll shall be marked with the following:

- Name of the material;
- Name of the manufacturer, initials or trade-mark, if any;
- Length and width of roll; and
- Year of manufacture.

5.2 BIS Certification Marking

The product may also be marked with Standard Mark.

5.2.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6. PACKING

6.1 The rolls shall be tightly wrapped with a layer of polyethylene film and hessian and sewn tightly all over or as agreed to between the buyer and the seller. If necessary, additional layers of packing materials may be used to avoid ingress of moisture in transit.

7. SAMPLING

7.1 For ascertaining the conformity in respect of length, width, breaking load, mass, ends, picks and thickness, the number of tests and criteria for conformity as given in IS : 3919-1966* shall be followed.

7.2 For ascertaining the conformity in respect of freedom from starch, the number of tests and criteria for conformity as given in IS : 543-1969† shall be followed.

A P P E N D I X A*(Clause 3.2.1)***CONSTRUCTIONAL PARTICULARS OF POPULAR VARIETIES OF COTTON CHAFER FABRICS**

Variety No.	Approximate Count of Yarn		Ends/ dm	Picks/ dm	Mass	Thick- ness
	Warp	Weft				
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					g/m ²	mm
1	5s (120 tex)	5s (120 tex)	82	90	235	0.79
2	4.5s (130 tex)	4s (145 tex)	80	80	265	0.79
3	6s (100 tex)	5s (120 tex)	120	110	305	0.71
4	4.5s (130 tex)	4.5s (130 tex)	130	110	365	0.76
5	2.5s (240 tex)	2.5s (240 tex)	76	76	385	0.96
6	4.5s (130 tex)	4s (145 tex)	126	110	395	0.79
7	2.8s (210 tex)	2.5s (240 tex)	90	90	475	0.99
8	10s/4 (59 tex × 4)	10s/4 (59 tex × 4)	80	80	410	0.96
9	10s/4 (59 tex × 2)	10s/4 (59 tex × 4)	90	92	485	0.96
10	10s/5 (59 tex × 5)	10s/5 (59 tex × 5)	90	92	585	1.09

*Methods for sampling cotton fabrics for determination of physical characteristics.

†Methods for sampling of cotton fabrics for chemical tests.

APPENDIX B*(Clause 3.3)***METHOD FOR DETERMINING STARCH CONTENT****B-1. TEST SPECIMEN**

B-1.1 Cut a piece weighing about 10 g from the test sample. Shred the piece into small bits and mix them thoroughly. Draw from the pieces so shredded a test specimen of about 5 g.

B-2. PROCEDURE

B-2.1 Boil the test specimen in about 200 ml of distilled water in a conical flask for about 45 minutes. Cool the contents in the flask. Put a drop of iodine solution on a smaller quantity taken from the flask.

B-3. REPORT

B-3.1 Observe whether there is any appearance of blue colour on adding a drop of iodine solution. Report the material to be free from starch if no blue colour is observed.

APPENDIX C

(Clause 0.3)

SI UNITS

TABLE 2 INTERNATIONAL SYSTEM OF UNITS

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

TABLE 3 RECOMMENDED SI UNITS FOR TEXTILES

SL No.	CHARACTERISTIC	SI UNIT		APPLICATION
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
1)	Length	Millimetre Millimetre, centimetre Metre	mm mm, cm m	Fibre Samples and test specimens (as appropriate) Yarns, ropes and cordages, fabrics
2)	Width	Millimetre Centimetre Millimetre, centimetre Centimetre, metre	mm cm mm, cm cm, m	Narrow fabrics Other fabrics Samples and test specimen (as appropriate) Carpets, druggets, <i>DURRIES</i> (as appropriate)
3)	Thickness	Micrometre (micron) Millimetre	μ m mm	Delicate fabrics Other fabrics, carpets, felts
4)	Linear density	Tex Millitex Decitex Kilotex	tex mtex dtex ktex	Yarns Fibres Filament and filament yarns Slivers, ropes and cordages
5)	Diameter	Micrometre (micron) Millimetre	μ m mm	Fibres Yarns, ropes, cordages
6)	Circumference	Millimetre	mm	Ropes, cordages
7)	Threads in cloth:			Woven fabrics (as appropriate)
	a) Length	Number per centimetre Number per decimetre	ends/cm ends/dm	
	b) Width	Number per centimetre Number per decimetre	picks/cm picks/dm	
8)	Warp threads in loom	Number per centimetre	ends/cm	Reeds
9)	Stitches in knitted cloth:			Knitted fabrics (as appropriate)
	a) Length	Courses per centimetre Courses per decimetre	courses/cm courses/dm	
	b) Width	Wales per centimetre Wales per decimetre	wales/cm wales/dm	

(Continued)

TABLE 3 RECOMMENDED SI UNITS FOR TEXTILES — *Contd*

SL No.	CHARACTERISTIC	SI UNIT		APPLICATION
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
10)	Stitch length	Millimetre	mm	Knitted fabrics Made-up fabrics
11)	Mass per unit area	Grams per square metre	g/m ²	Fabrics
12)	Mass per-unit length	Grams per metre	g/m	Fabrics
13)	Twist	Turns per centimetre Turns per metre	turns/cm turns/m	Yarns, ropes (as appropriate)
14)	Test or gauge length	Millimetre, centimetre	mm, cm	
15)	Breaking load	Millinewton	mN	Fibres, delicate yarns (skeins or individual)
		Newton	N	Strong yarns (individual or skeins), ropes and cordages, fabrics
16)	Breaking length	Kilometre	km	Yarns
17)	Tenacity	Millinewton per tex	mN/tex	Fibres, yarns (individual or skeins)
18)	Twist factor or twist multiplier	Turns per centimetre × square root of tex	turns/cm × $\sqrt{\text{tex}}$	Yarns (as appropriate)
		Turns per metre × square root of tex	turns/cm × $\sqrt{\text{tex}}$	
19)	Bursting strength	Newton per square centimetre	N/cm ²	Fabrics
20)	Tear strength	Millinewton	mN	Fabrics (as appropriate)
		Newton	N	
21)	Pile height	Millimetre	mm	Carpets
22)	Pile density	Mass of pile yarn in grams per square metre per millimetre pile height	g/m ² /mm pile height	Pile carpet
23)	Elastic modulus	Millinewton per tex per unit deformation	mN/tex/unit deformation	Fibres, yarns, strands

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